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MEMORANDUM

SUBJECT: Review of "Chronic and Acute Dietary Exposure Analyses and Risk Assessment for Ethion Residues in Foods" (Novigen Report Ethion 97-01) submitted in support of the reregistration of Ethion

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2/25/98

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Background

The chronic and acute dietary exposure assessments provided by FMC Corporation in support of the reregistration of Ethion was found to be acceptable for regulatory purposes. The assessment use the CSFII 1989-1991 consumption database as translated by Novigen. This database is acceptable. The toxicological endpoints used in the assessment were the RfD = 0.0005 mg/kg BW/day based upon an LOEL of 0.05 mg/kg BW/day for cholinergic signs in humans. The endpoint used in the acute dietary assessment was 0.05 mg/kg BW/day based upon cholinesterase inhibition in humans on day 19 of exposure. An MOE of 10 was considered acceptable.

The registered uses of Ethion considered in the assessment were citrus and secondary residues in meat and milk from feeding of dry citrus pulp to cattle. This assessment was high refined. Refinements for percent crop treated and anticipated residues were used in these analyses. In addition, residue distributions citrus from field trials and for citrus juices were introduced in an acute probabilistic assessment. The field trial values selected were appropriately matched to the maximum label rates for Ethion on citrus.

Results

The chronic dietary risk assessment indicated no unacceptable exposure to any subpopulation examined. The highest exposed subgroup was children (1-6 years) at 21% of the RfD. A commodity contribution indicated that the single highest contributor to the risk was tangerines. Removal of this commodity resulted in a reduction for children (1-6 years) to 16% of the RfD.

(1)

For the acute dietary risk assessment, all subgroups except for children (1-6 years) had MOEs of greater than 10 at the 99.9th percentile of exposure. Children (1-6 years) had an MOE of 5. Removal of tangerines resulted in an increase in the MOE for children (1-6 years) to 16. MOEs for the ethion acute dietary assessment, with and without tangerines, are summarized below by subpopulation.

Acute Dietary Risk as Indicated by Margins of Exposure*		
Population Subgroup	All Citrus	Without Tangerines
Total US Population	17	27
Females (13+ years)	20	47
Infants	18	18
Children (1 - 6 years)	5	16
Children (7 - 12 years)	11	22

*MOEs reflect the 99.9th percentile of exposure.